IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Vance BERGERON et al

Application No.: 09/698,479   Examiner: Cheung K. William

Filed: October 30, 2000   Art Unit: 1615

For: POLYMERS, COMPOSITIONS AND METHODS OF USE FOR FOAMS LAUNDRY
        DETERGENTS SHOWER RINSES AND COAGULANTS

<u>RULE 132 DECLARATION OF VANCE BERGERON</u>

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Vance Bergeron, declare as follows.

1.   I, Vance Bergeron, received my Bachelor of Science in Chemical Engineering at Virgina Tech in 1987, and a Ph.D. in Chemical from Engineering at the University of California, Berkeley in 1993. From 1995 to 2000 I have been employed by Rhodia Inc. as a Research Scientist in the Corporate Research division of Rhodia wherein my focus was Physical chemistry and formulation development. I am a named co-inventor of the presently claimed application. I am no longer employed by Rhodia Inc. Since 2001 I have been employed by The CNRS as a French civil-servant research Scientist in the Physics Department at the Ecole Normale Supérieure de Lyon, wherein my focus is Physics.

2.   I am familiar with the prosecution of the above-identified patent application and the pending Final Office Action mailed November 8, 2006.

3.   The Office action asserts in Claim 7, as presented in the Amendment of October 2, 2006, "the recitation 'the molecular weight of the polymer is in the range of about 10,000 to about 300,000 daltons' is considered indefinite. Applicants must recognize that a polymer having the same molecular weight can be characterized by a number average molecular weight and/or a weight average molecular weight."

4.   The molecular weights of Claim 7 are weight average molecular weights. At the

time the parent of the present application was filed, on May 26, 1999, particularly for polymers to be used for detergents, this was the unit by default. For high molecular weight polymers like the ones commonly used in detergency, weight average molecular weight measurements are more accurate. Number average molecular weight may be more relevant for small molecular weight polymers such as dispersants (less than 10000 daltons).

5.   Also, the next to last paragraph of the summary of the invention states, "All percentages, ratios and proportions herein are by weight, unless otherwise specified." This is consistent with the default value being weight for the characteristic of average molecular weight. To calculate weight average molecular weight or number average molecular weight one groups together the amounts of molecules in various weight ranges such that the proportions of the molecules in the various groups are a factor in the calculation. Moreover, unlike number average, the weight average molecular weight has a weight component in both the numerator and denominator. Weight average molecular weight is calculated as follows: $Mw = (\sum_i N_i M_i^2)/(\sum N_i M_i)$. Number average molecular weight is calculated as follows: $Mn = (\sum_i N_i M_i)/\sum N_i$.

6.   Also, the Office action asserts "both Fink et al. and the molecular weight as claimed are silent [on] the type of molecular weight being disclosed or claimed. Since Fink et al. (abstract) disclose a molecular weight of at least 500,000 which can be a weight average molecular weight, and that a weight average molecular weight of a polymer is generally higher than the number average molecular weight of the same polymer having a molecular weight distribution that is skewed toward [the] high molecular weight portion of the molecular weight distribution of the polymer, the examiner has a reasonable basis that the molecular weight properties as claimed is inherently possessed."

7.   Declarant respectfully asserts the polymers described in US 4,542,175 to Fink have been prepared via conventional free-radical polymerization in emulsion to have high molecular weights. The polymers described in the Fink patent are dispersed particles that become soluble in acidic conditions. They are synthesized as "latex" particles in alkaline conditions, with an emulsion polymerization method (from column 2, line 66 to column 3, line 12, and from column 7 line 61 and beyond, and the examples 1 to 7 disclose an emulsifier). Polymers prepared via conventional free-radical polymerization in emulsion have been for years described in terms of Mw (weight average) and not Mn (number average), even though some techniques giving Mn have existed for years. Some techniques such as gel permeation chromatography mentioned in the

present application can measure both Mw (weight average) and Mn (number average). However, historically techniques for determining Mn such as vapor pressure osmometry and end-group titration are more relevant for low molecular weight polymers and not high molecular weight polymers like those typically obtained in emulsion polymerization. It is only since the discovery of controlled radical polymerization to obtain lower molecular weight polymers that researchers use Mn more and more.

8. Thus, the present application claims ranges in weight average molecular weight and the polymers described in US 4,542,175 to Fink et al. are in weight average molecular weight. Thus, the presently claimed ranges and the range of US 4,542,175 to Fink et al. do not overlap.

9. Moreover, a weight average molecular weight is generally higher than a number average molecular weight. Thus, if the range of US 4,542,175 to Fink et al. was a number average molecular weight range then the corresponding weight average molecular weight range would be higher and further removed from the presently claimed weight average molecular weight ranges. Thus, since the ranges of the present application claims are weight average, Fink is avoided regardless of whether it is number or weight average.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

Date: May 4, 2007   By: _____
                                       Vance Bergeron

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